

Portland Harbor Source Control Recontamination Evaluation Strategy

I presented an outline of issues and considerations on SEDCAM as the primary vehicle for Recontamination Evaluation at the Dec 14 TCT meeting. These issues are still pertinent and I have updated them in an Addendum to this document and the initial comments from CDM will further their consideration. The discussion I'm teeing up here looks at the bigger picture to get both DEQ and EPA thinking about Recontamination Evaluation particulars – Expectations for format, partnership, and follow-through.

ASSUMPTIONS

1. The aim of conducting Recontamination Evaluation (RE) in Portland Harbor is to ensure that the **river, and particularly river sediment**, will not be recontaminated following implementation of the in-water sediment action remedies.
 - a. An initial RE uses lines of evidence and specific tools to **estimate** the potential for recontamination from stormwater, groundwater, and erodible banks.
 - I. At specific sites
 - II. In regional areas (AOPCs/SMAs, Outfalls (specific or grouped), restoration sites).
 - III. On a harbor-wide basis.
 - b. RE's should be designed such that it can be revisited to **confirm** the predictions, **verify effectiveness** of upland SCMs implemented, and identify new threats.
 - c. **Additional monitoring/data collection** of sediment, water & biota will be necessary.
2. Development is needed of appropriate tests to confirm predictions or trigger corrective actions to avoid recontamination (on site, regional area, and harborwide scales).
3. It is desirable to have a **consistent approach** for directing RE's in Portland Harbor, especially those that rely heavily on modeling. Rich Muza is EPA Lead and Alex Liverman is DEQ lead.
4. DEQ and EPA will **each lead RE's** under different circumstances, using the jointly developed approach.
5. In alignment with the JSCS, EPA Contaminated Sediment Remediation Guidance (2005), and EPA OSWER Directive 9285.6-08, a "lines of evidence" approach will be utilized for RE's, based on both qualitative and quantitative data and analysis.
 - a. Qualitative information will provide the foundation for reduced risk of recontamination – cataloguing site specific SCMs, City OF source ID/Control actions, ODOT OF SCMs, area of potential contribution and that controlled, CSO eliminations and SW diversions to WWTP, NPDES permitting, and other on-going programs that reduce toxics to the river.
 - b. Limited SEDCAM and other modeling, area specific loading analyses, and site specific risk reduction analyses will provide quantitative tools to support the qualitative analysis.

RECONTAMINATION EVALUATION ISSUES FOR CONSIDERATION

A. What will the format of the RE be and how will it be integrated into EPA's decisions?

- 1) DEQ anticipates preparing a "Milestone-like Source Control Summary Report" which will include fleshing out the assumptions above in coordination with EPA.
 - i. Start with regional RE's (looking at SMAs, unique hydraulics areas, & others as needed)
 - ii. Regional RE's will be informed by site specific RE's (anomalous, uncertainty in SCMs, early actions, single pathway focus) with loading analyses, modeling, comparative data analyses (before/after SCMs)
 - iii. Aggregate regional RE's for a harborwide look. Stormwater, groundwater, erodible banks must all be addressed, but each pathway may not be relevant at each site or region.
 - a) Extrapolating from site specific and regional RE's and adding uncovered areas, as needed (limited additional loading analyses, modeling may be needed).
 - b) Cross check with LWG fate and transport model.
 - c) Compare approach to other CERCLA in-water remediations and apply lessons learned for ROD, recontamination, 5-year plans, etc.
 - 2) As EPA's Guidance (2005) indicates the RE should be complete prior to implementation of in-water sediment actions, DEQ anticipates the RE elements will be addressed in EPA's response to the FS and in the ROD.
 - i. If significant recontamination potential is found at a site, esp. where total control is not attainable, EPA led SCMs may be needed as part of the response action.
 - ii. If sediment actions will result in significant benefits to human health or the environment, sediment actions should go forward despite on-going source risks.
 - 3) The RE should have an adaptive management strategy.
 - i. On-going monitoring data (through PH 1200Z permits, remedy evaluation & maintenance, etc.) to trigger re-evaluation or corrective action.
 - ii. Identify areas of uncertainty, unique hydraulics, representative SMAs, etc. to focus on.
- B. DEQ's Stormwater Source Control Strategy has been implemented in Portland Harbor since 2009 as an "iterative remedy," inclusive of effectiveness monitoring and adaptive management. As stormwater has been prioritized as a potentially important on-going pathway to the river, DEQ's stormwater strategy will be the centerpiece of DEQ's harborwide RE. Effectiveness monitoring and adaptive management:
- 1) May be informed by data collected under a PH specific 1200-Z permit, consistent across all PH sources, and used in comparative analyses and additional modeling analyses (to confirm RE predictions or trigger corrective action).

- 2) Should be integrated into EPA's monitoring of remedies (e.g., MNR, capping, dredging) required per EPA 2005 Guidance (discussed further below).
- 3) May be improved by partnering with the City on monitoring for industrial permit discharges, evaluation of MS-4 discharges, and OF/SMA/site specific loading analyses/modeling.

C. When does DEQ or EPA take the lead or partner on RE's?

1) DEQ Lead Situations

- i. At some Medium priority pathway(s) upland sites – determination if source control is necessary
- ii. Evaluation of proposed upland site specific source control design and effectiveness confirmation – if there is uncertainty as to anticipated effectiveness of the proposed measure or design

2) EPA Lead Situations

- i. Early action sites – EPA has required the implementing party to conduct a RE of upland and to some extent in-water sources.
- ii. RD/RA – Evaluation of upland and in-water sources - specifically the riverbank component (conducted by the AOPC/SMA performing parties with EPA as the lead)

3) DEQ & EPA Partner Situations

- i. Harborwide – DEQ puts forward the RE in the “Milestone-like Source Control Summary Report” with EPA coordination and EPA uses it in determining when remedies move forward and what additional SCMs may be needed at significant sites.
- ii. On-going effectiveness monitoring & additional sampling and analysis to verify recontamination evaluation predictions.
 - a) MNR – sediment accumulation rates, contaminant degradation rates/products, transport, contaminant levels (sediment, water, tissue), biotic recovery
 - b) Caps – construction specs met, bathymetry (thickness & stability over time), core chemistry (confirm isolation/no breakthrough), biological, cap surface recontamination
 - c) Dredging – residuals (sediment, benthics, bioaccumulatives, tissues), recontamination of sediment or biota.

MODELING ISSUES FOR CONSIDERATION

See Addendum specific to SEDCAM issues for consideration.